LISTING OF CLAIMS

Upon entry, the following listing of claims replaces all previously presented claims listings.

IN THE CLAIMS:

1. (Previously Presented) A resin-protein/peptide complex which comprises a resin and a target protein or peptide bound thereto wherein said resin comprises

a) a solid support matrix; and

b) selected ionizable ligand covalently attached to the matrix

wherein the ionizable ligand is selected such that the resin is electrostatically uncharged at a high and a low ionic strength at the pH where the target protein or peptide is bound to the resin wherein the protein or peptide binds to the resin at a pH of 5 to 9 and is electrostatically charged at the pH where the target protein or peptide is desorbed from the resin wherein desorption occurs by a change in the pH from the binding pH and further wherein about 50 percent or more of the target protein or peptide in an aqueous medium binds to the resin when the aqueous medium has either a high or a low ionic strength.

2. (Original) The resin-protein complex of Claim 1 wherein the ionizable ligand is electrostatically uncharged at the pH where the target protein or peptide is bound to the resin and is positively charged at the pH where the target protein or peptide is desorbed from the resin.

3. (Original) The resin-protein/peptide complex of Claim 1 wherein the ionizable ligand is electrostatically uncharged at the pH where the target protein or peptide is bound to the resin and is negatively charged at the pH where the target protein or peptide is desorbed from the resin.

4. (Original) The resin-protein/peptide complex of Claim 1 wherein the ionizable ligand comprises an ionizable functional group directly attached to the solid support matrix.

5. (Original) The resin-protein/peptide complex of Claim 1 wherein the ionizable ligand comprises a spacer arm and at least one ionizable functionality wherein the ionizable functionality is attached to the solid support matrix via the spacer arm.

Claim 6 (Canceled)

7. (Original) The resin-protein/peptide complex of Claim 1 wherein the resin further comprises non-ionizable ligands.

8. (Original) The resin-protein/peptide complex of Claim 7 wherein the percentage of non-ionizable ligands attached to the solid support matrix based on the total of ionizable and non-ionizable ligands ranges from greater than 0% to about 80%.

9. (Original) The resin-protein/peptide complex of Claim 8 wherein the percentage of non-ionizable ligands attached to the solid support matrix based on the total of ionizable and non-ionizable ligands ranges from greater than 0% to about 40%.

10. (Original) The resin-protein/peptide complex of Claim 1 wherein the solid support matrix is cross-linked.

11. (Original) The resin-protein/peptide complex of Claim 1 wherein the resin contains from about 0.05 mmol to about 0.5 mmol ionizable ligand per ml of the solid support matrix prior to covalent attachment of any non-ionizable ligand.

12. (Original) The resin-protein/peptide complex of Claim 1 wherein the solid support matrix is non-ionizable.

13. (Original) The resin-protein/peptide complex of Claim 1 wherein the solid support matrix contains ionizable functionality which functionality is electrostatically uncharged at the pH where the target protein or peptide is bound to the resin and is

electrostatically charged at the pH where the target protein or peptide is desorbed from the resin.

14. (Original) The resin-protein/peptide complex of Claim 1 wherein the electrostatic charge induced on the resin of the resin-protein/peptide complex is of the same polarity as the net electrostatic charge on the target protein or peptide at the pH of desorption.

15. (Original) The resin-protein/peptide complex of Claim 1 wherein the electrostatic charge induced on the resin of the resin-protein/peptide complex is of the opposite polarity from the net electrostatic charge on the target protein or peptide at the pH of desorption.

16. (Previously Presented) A resin-protein/peptide complex which comprises a resin and a target protein or peptide bound thereto wherein said resin comprises

a) a solid support matrix having a selected ionizable functionality incorporated into the backbone thereof wherein the ionizable functionality is selected such that the resin is electrostatically uncharged at a high and a low ionic strength at the pH where the target protein or peptide is bound to the resin wherein the protein or peptide binds to the resin at a pH of 5 to 9 and is electrostatically charged at the pH where the target protein or peptide is desorbed from the resin wherein desorption occurs by a change in the pH from the binding pH; and

b) optionally a non-ionizable ligand covalently attached thereto,

wherein about 50 percent of more of the target protein or peptide in an aqueous medium binds to the resin when the aqueous medium has either a high or a low ionic strength.

17. (Original) The resin-protein/peptide complex of Claim 16 wherein the ionizable functionality is electrostatically uncharged at the pH where the target protein or peptide is bound to the resin and is positively charged at the pH where the target protein or peptide is desorbed from the resin.

18. (Original) The resin-protein/peptide complex of Claim 16 wherein the ionizable functionality is electrostatically uncharged at the pH where the target protein or peptide is bound to the resin and is negatively charged at the pH where the target protein or peptide is desorbed from the resin.

19. (Original) The resin-protein/peptide complex of Claim 16 wherein the ionizable functionality comprises amino groups covalently attached in the backbone of the solid support matrix.

20. (Original) The resin-protein/peptide complex of Claim 16 wherein the solid support matrix is cross-linked.

21. (Original) The resin-protein/peptide complex of Claim 16 wherein the resin contains from about 0.05 mmol non-ionizable ligand per ml of the solid support matrix.

22. (Original) The resin-protein/peptide complex of Claim 16 wherein the electrostatic charge induced on the resin of the resin-protein/peptide complex is of the same polarity as the net electrostatic charge on the target protein or peptide at the pH of desorption.

23. (Original) The resin-protein/peptide complex of Claim 16 wherein the electrostatic charge induced on the resin of the resin-protein/peptide complex is of the opposite polarity from the net electrostatic charge on the target protein or peptide at the pH of desorption.

Claims 24-54 (Canceled)

55. (Currently Amended) A resin-protein/peptide complex which comprises a resin and a target protein or peptide bound thereto wherein said resin comprises

a) a solid support matrix; and

b) selected ionizable ligand covalently attached to the matrix,

wherein the ionizable ligand is selected such that the resin is electrostatically uncharged at a high and a low ionic strength at the pH where the target protein or peptide is bound to the resin wherein the protein or peptide binds to the resin at a pH of 5 to 9 and is electrostatically charged at the pH where the target protein or peptide is desorbed from the resin wherein desorption occurs by a change in the pH from the binding pH, and wherein said ionizable ligand is selected from group consisting of amine groups, phenolic groups, histidyl groups, ~~hydroxyl groups,~~ pyridyl groups, anilino groups, morpholinyl groups, ~~thiol groups,~~ and imidazolyl groups, and further wherein about 50 percent or more of the target protein or peptide in an aqueous medium binds to the resin when the aqueous medium has either a high or low ionic strength.

56. (Currently Amended) A resin-protein/peptide complex which comprises a resin and a target protein or peptide bound thereto wherein said resin comprises

a) a solid support matrix having a selected ionizable functionality incorporated into the backbone thereof wherein the ionizable functionality is selected such that the resin is electrostatically uncharged at a high and a low ionic strength at the pH where the target protein or peptide is bound to the resin wherein the protein or peptide binds to the resin at a pH of 5 to 9 and is electrostatically charged at the pH where the target protein or peptide is desorbed from the resin, wherein desorption occurs by a change in the pH from the binding pH, and further wherein said ionizable ligand is selected from group consisting of amine groups, phenolic groups, histidyl groups, ~~hydroxyl groups,~~ pyridyl groups, anilino groups, morpholinyl groups, ~~thiol groups,~~ and imidazolyl groups; and

b) optionally a non-ionizable ligand covalently attached thereto,

wherein about 50 percent or more of the target protein or peptide in an aqueous medium binds to the resin when the aqueous medium has either a high or low ionic strength.